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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/713.525

11/13/2003

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EXAMINER

BLOOM, NATHAN J

ART UNIT

PAPER NUMBER

2624

NOTIFICATION DATE

DELIVERY MODE

02/05/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspatents@senniger.com

Office Action Summary

Application No.

10/713,525

Applicant(s)

BURCH ET AL.

Examiner

Nathan Bloom

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Applicants' response to the last Office Action, filed on January 11th, 2008 has been entered and made of record.

Applicants' amendment had required new grounds of rejection. New grounds of rejection are therefore presented in the Office Action.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-13, 15-19, 21-25, 27-31, and 33-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike (US 5408338 B2) in view of Joyce (US 4941190).

Instant claim 1: A method of blurring a digital video image having a plurality of pixels, each having a value specifying color data, said method comprising: [*Grayscale (black, white, and various grays) are colors.*]

Identifying a particular pixel of the plurality of pixels; [*Koike discloses in Figure 2 the identification of a particular pixel X. Also, see lines 20-55 of column 4 for smoothing (blurring) details. This filtering process is done for each desired pixel in the digital image and results in a blurred version of the original image.*]

Selecting P pixels from the plurality of pixels wherein the selected pixels are different from the particular pixel; [Koike does not disclose expressly the selection of pixels that are different from the particular pixel "X". As can be seen in Figure 2, Koike lists an example of the calculation of the mean by including the particular pixel "X" and excluding the pixel "H" (see lines 30-45 of Koike). However, as is evidenced by Joyce, the exclusion of the particular pixel when calculating a mean pixel value was known to one of ordinary skill in the art. Joyce teaches in lines 40-60 of column 5 the use of an annular mean to calculate an average value of a particular pixel Dc. The annular mean uses the surrounding 2^N (selected pixels) pixels to determine the mean without the use of the particular pixel. Also, Joyce teaches that there is a known computational advantage to using 2^N pixels (logical bit shifting). Thus Joyce and Koike both teach the determination of an average pixel value while limiting the number of pixels to a set of values that permits for the use of efficient computation (2^N pixels using logical bit shifts). Furthermore, Joyce teaches not using the particular pixel value in the calculation. Given the teachings of Joyce and Koike it would have been obvious to modify the teachings of Koike to perform the operation using only the non-particular pixel values (as taught by Joyce) with a reasonable expectation for success since it still smoothes the selected pixel based on a required number of pixel values.]

Determining a blurred value as a function of the values of only the selected pixels; and
[See above as taught by Koike in view of Joyce.]

Replacing the value of the particular pixel with the blurred value. [See above as taught by Koike.]

Instant claim 15 encompasses the system that performs the method of claim 1. The system is composed a memory for storing the values of the pixels, a processor for identifying, selecting, and determining the pixels and their values, and a display for displaying these values. Koike discloses the method as per rejection of instant claim 1 and discloses a system for performing it in lines 20-26 of column 2 and columns 3-4. The system as disclosed by Koike obviously encloses a processor and memory, as these are necessary components in an image processing system. Furthermore, a display device is a typical device for image processing systems that is not necessary but often included for viewing of the processed image.

Instant claim 27 encompasses the method of modifying a digital image as is described by instant claim 1. Since blurring is modifying the rejection of instant claim 1 applies.

Instant claim 21 encompasses the computer readable medium that performs the method described in claim 1. As per rejection of claim 1 the method has been taught. Furthermore, it would have been obvious to one of ordinary skill in the art to write the methods into a computer readable medium so as to implement the disclosed method on a computer system.

Instant claim 2: The method of claim 1 wherein $P=2^N$, $N=1, 2$ or 3 and wherein the selected pixels are ~~different from and~~ contiguous to the particular pixel. *[Koike discloses in Figure 2, lines 20-44 of column 1, and in lines 1-51 of column 4 an image processing unit and method in which smoothing is performed. This smoothing (blurring) operation described by Koike involves selecting a particular pixel "X" and $P=2^N$ (with $N= 3$ or 4) total pixels and blurs the particular*

pixel based on the average of the pixels. As per the rejection of instant claim 1 it would have been obvious to exclude the particular pixel from the calculations as long as an appropriate number of neighborhood pixels are selected to properly perform the smoothing operation. Furthermore, Koike teaches in lines 42-48 of column 4 an advantage to using a number of pixels that is a power of two for the calculations (Note: Joyce also mentions the advantage of using power of two calculations.) Koike clearly states in lines 42-48 of column 4 that the number of pixels chosen is a power of two because of the advantage this provides in binary processing. However, Koike does not disclose the cases wherein $N=1$ or 2 . Even though Koike does not teach the use of a smaller set of pixels such as $N=1$ or 2 it would have been clear to one of ordinary skill in the art that the method taught by Koike was applicable for any reasonably sized set of pixels that is a power of 2 since the benefit of the binary processing of powers of 2 and the smoothing effect of the filter are still applicable for these smaller sets.]

Instant claim 16 has been taught by Koike as per rejection of claims 2 and 15 the system and the method it performs has been disclosed.

Instant claim 28 encompasses the method of modifying a digital image as is described by instant claim 2. As per the rejection of claims 2 and 27 Koike has disclosed this method, because blurring (smoothing) is a way of modifying a digital image.

Instant claims 3 and 5 provide the additional limitation to instant claim 1 that the method described in claim 1 is repeated for a plurality of other pixels. The process as disclosed by Koike is repeated for each pixel that is intended for filtering (possible the entire image) by iteratively selecting another particular pixel and a group of P other pixels to perform the smoothing or blurring function on. Examiner takes official notice that it was notoriously well known to one of ordinary skill in the art at the time of the invention to repeat an image processing method for the entire image or a region of interest, and this is often not stated as it is inherent that each pixel in the image or at least in a region of the image will be filtered by repeating the outlined image processing method.

Instant claims 4 and 6 provide the limitation as described by claim 2 to claims 3 and 5 respectively. As per the rejection of instant claim 2 this limitation has been shown to be obvious in view of Koike.

Instant claim 7 provides the limitation to the method of claim 1 that $P=2^N$ and that the blurring function is done by averaging the values of the selected pixels. As per rejection of claim 2 Koike has taught these limitations.

Instant claims 29-31 are encompassed by the methods of claims 1-7 and 27-28, and as per rejection of claims 1-7 and 27-28 Koike has disclosed these limitations.

Instant claims 8-13: See the rejection of claims 1-2, and 7 for the amended portion of claim 8 and the limitations that $N=1,2$, or 3. Koike discloses in lines 1-48 of column 4 that using a set of pixels that is a power of 2 presents computational advantages when using digital processing. Furthermore, Examiner takes official notice that it was notoriously well known to one of ordinary skill in the art at the time of the invention how to average a set of values using binary processing while taking advantage of dividing power powers of 2. The averaging is done by logical shifting and is preferred due to its computational savings by requiring just N logical bit shifts as opposed to the more complex division that requires more steps and thus more computational time. Also, part of the logic shifting method involves masking the first N bits (replace with a zero value as the values are shifted out of these bits).

Instant claims 17-19 have been disclosed as per the rejection of instant claims 1-16.

Instant claims 22-25 encompass the computer readable medium that stores the instructions that perform the methods as described in claims 1-7. As per the rejection of claims 1-7 and 21 Koike in view of Joyce have taught these limitations.

Instant claims 33-37 encompass the methods of claims 1-13. As per rejections of claims 1--13 these limitations have been disclosed by Koike in view of Joyce.

3. Claims 14, 20, 26, 32, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike and Joyce as applied to claims 1-13, 15-16, 21-25, 27-31, and 33-37 in view of Kawano (US 6480302).

Instant claim 14 further limits the method of claim 1 wherein the determining and replacing is accomplished by processing all color channels (components) of the selected pixel in parallel. Herf discloses the processing of an 8-bit grayscale image that does not have multiple color components. However, Kawano discloses an image processing method and apparatus that operates on each pixel of a grayscale image. Furthermore, Kawano discloses in lines 24-44 of column 19 that it is possible to operate on a color image using a grayscale technique or apparatus by dividing the image up into its color channels (components) and operating on each channel individually in parallel in each of the image processing units. Since a color image is essentially just multiple separate images (image channels) wherein each separate channel is an image in that specific color channel. Thus an RGB color channel has a Red image, a Green image, and a Blue image. At the time of the invention it was well within the knowledge of one of ordinary skill of the art to process color images by processing each channel separately with a process designed for a grayscale image as is taught by Kawano. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Kawano with Koike and Joyce to perform the efficient grayscale (single channel) smoothing method on a color (multiple channel) image.

Instant claims 20, 26, 32, and 38 are encompassed by the limitations of claim 1-14, 21, 27, and 33. As per rejection of claims 1-14, 21, 27, and 33 Koike and Joyce in view of Kawano has disclosed these limitations.

Response to Arguments

4. Applicant's arguments with respect to claims 1-38 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Bloom whose telephone number is 571-272-9321. The examiner can normally be reached on Monday through Friday from 8:30 am to 5:00 pm (EST).


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed, can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NB



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